I would like to express my gratitude for the completion of the OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. It is evident that numerous individuals put considerable thought and effort into this document. Vapor intrusion is a complex issue and this guidance gives us a process for dealing with it that seems both sensible and defensible.

I would like to provide two comments on the implementation of the guidance. Both comments center on the "alpha" or attenuation factors used to determine indoor air levels from soil gas samples taken near the surface (either sub slab or <5ft).

Comment 1.
The use of the near surface or subslab sampling attenuation factor of 0.1 will be questioned and challenged. Empirical and other forms of justification for the 0.1 value should be solid and defensible. This will be even more controversial because near surface or subslab soil gas sampling will emerge as the dominant screening or confirmation sampling when dealing with vapor intrusion. There are two reasons for this:

(1) Once in secondary screening the user is directed to Q6 whenever the groundwater concentrations exceed 20X the target specific groundwater concentration (20x was announced as a change from 50X at the EPA Vapor Intrusion Conference Feb. 25 & 26 in Atlanta). This limits the range of options in Q5. Groundwater concentrations are generally the most prevalent form of vapor type data available at most sites, and sites will frequently fail the 20X Q5 screening criteria.

Once in Q6, the user has the option of modeling to decide which homes should be monitored using near surface soil gas or indoor air samples. Most regulators will insist on very conservative model inputs and therefore most users will wind up performing near surface soil gas sampling or indoor air sampling. Because of the inherent problems with indoor air background most users will opt for soil gas samples. Then they will question the use of the 0.1 value.

(2) Of the sampling options, near surface soil gas sampling is the least expensive and easiest to complete. This option is also generally available at any time in the screening process. Its applicability and cost effective ease of use will encourage people to take this option

The use of the default near surface soil gas to indoor air attenuation value (0.1) should be well justified. The justification should take a course similar to what Helen Dawson has used to justify the groundwater to indoor air attenuation value. Consultants and responsible parties will want to know how and why any given value was selected. They will want ample justification for the selection of this value and they will want empirical evidence. There appears to be little empirical evidence for this value. Regardless, the guidance will be difficult to implement without a solid justification.

Comment 2

A large and continuing data base of soil gas and groundwater to indoor air samples needs to be set up and maintained. Before Helen Dawson set up her data base we had little idea on how to verify any default attenuation values. Data of this type are essential to the long term success of vapor intrusion guidance and invaluable to states and private entities. There are many reasons for this. Some of those reasons are:

(1) access to attenuation data and factors regarding similar sites
(2) access to information relative to the applicability and utility of modeling
(3) continuing justification of the default attenuation values
(4) access to information on how to improve the quality and applicability of site data

Due to the inherent indoor air background problems indoor air sampling is easily compromised or confusing. The lack of quality data on near surface soil gas to indoor air attenuation factors does not instill confidence in these values. Currently then, the only way to have confidence that there is not a vapor intrusion problem is to require both indoor air samples and near surface soil gas samples (this includes subslab samples) simultaneously. The use of both at the same time can negate the weaknesses of each individually. A national data system would allow us to justify and build confidence in default soil gas to indoor air attenuation factors. At a minimum this will reduce the need for indoor air sampling and allow users to adequately characterize the potential for vapor intrusion.

Again my sincere thanks for the development of this guidance, its utility should not be underestimated. It will give all of us struggling with this problem a benchmark.

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